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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,987	09/06/2000	Calvin B. Ward	54391	9378

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EXAMINER	
DICUS, TAMRA	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/655,987	WARD, CALVIN B.	
	Examiner	Art Unit	
	Tamra L. Dicus	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *9-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 19-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

All prior rejections are withdrawn due to Applicant's amendments.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh.

Lickfield discloses a nonwoven laminate. The laminate is structured as follows: layer 12 is an electret material (permanently containing electrostatic charges) adjacent to layer 14. See col. 4, lines 35-60. While layer 14 is not described by Lickfield as an absorbent material, layer 14 is comprised of various natural or synthetic fibers having hydrophilic/hydrophobic properties. Such fibers include cotton, wool, rayon, or acrylic fibers (col. 4, lines 10-15). Such fibers as cotton inherently function to absorb liquid and layer 14 would be considered an absorbent layer because layer 14 is made entirely of such fibers. See also col. 3, lines 55-68. The Examiner respectfully submits Applicant's absorbent material does not claim any absorbency percentage in use. The material of 12 is of a nonwoven fibrous web of polyolefin resins (col. 4, lines 35-45). Layer 14 may also comprise polyolefin resins. Layers 12 and 14 are bonded by various techniques (providing bonded limitation of instant claim 27) at col. 4, lines 59-60. The limitation that the absorbent layer is "for protecting an exposed surface" is not a patentable limitation.

Since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Since Lickfield employs the same materials as Applicant, it is inherent that the Lickfield article functions in the same manner as claimed by applicant. Lickfield discloses using the nonwoven laminate in filtration media which includes articles such as diapers, pads, surgical gowns, industrial garments and such at col. 1, lines 10-30. At col. 8, lines 38-50 and col. 9, lines 12-20, layer 14 may be combined with a nonwoven meltblown web on outer side 14.

While Lickfield employs hydrophilic fibers in the aforesaid layers, Lickfield does not expressly disclose a water-impermeable sheet. Burleigh teaches a waterproof, moisture-vapor permeable sheet material and method. Burleigh teaches sheet material 10 employs hydrophilic, water-impermeable material 13 (col. 3, lines 45-50). Burleigh explains the hydrophilic material must be capable of converting a liquid-impermeable solid water vapor transport material which sticks to the passage walls of the pores of the matrix. It would have been obvious to one of ordinary skill in the art to include a water-impermeable sheet in order to have a hydrophilic material that has the properties of liquid/vapor sticking to the walls of pores (col. 3, lines 45-50 of Burleigh).

Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh and further in view of USPN 5,730,922 to Babb et al.

Lickfield is relied upon above. Lickfield does not disclose absorbent layer 14 comprising paper or a fibrous mat. Babb teaches a composite laminate sheet comprising a layer of

polymeric material such as perfluorocyclobutane adhering to nonwoven or woven porous layers of paper (as per instant claim 20), fibrous glass or non-woven fiber mats (as per instant claim 23), or polyester material (absorbent layer). See col. 2, lines 1-65, col. 13, line 45- col. 14, line 5, and col. 15, lines 25-60. Within col. 2, Babb discloses the various aforementioned layers may be of different fibrous structures e.g. fiber mats, porous nonwoven/wovens depending upon the desired application. At col. 1, lines 14-40 Babb points to the various forms of laminates. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to comprise materials such as paper or fibrous mats because Babb teaches laminates are conventional to use such structures dependent upon the desired application, the same as Applicant requires.

3. Claims 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh and further in view of USPN 4,828,582 to Hermann.

4. Lickfield is relied upon above. Lickfield does not teach cells for containing liquid (instant claim 28) or an open cell foam (instant claim 21). Hermann discloses a foam substrate and micropackaged active ingredient particle composite dispensing materials. Hermann employs foam polymerization to form an open cell foam substrate at col. 6, lines 55-65 for providing extra strength to a material. See Figure 1 illustrating the plurality of cells (instant claim 28). Hermann's foam provides softness also at col. 7, line 13 which may contain polypropylene, polyethylene or other ingredients to provide protection against a number of environmental effects including sunlight or contamination. See further col. 7, lines 14-25. Further at col. 11, lines 45-55, the open cell foam is filled with liquid within fibrous or fabric material and bonded to the

open foam substrate. Therefore, it would have been obvious to one of ordinary skill in the art to modify the article of Brown to include cells or an open cell foam since Hermann teaches doing so provides extra strength to a material, to contain liquid within the cells, or to provide protection against a number of environmental effects including sunlight or contamination as cited above.

5. Lickfield does not teach a plurality of cells including impermeable barriers to prevent liquid from moving from one cell to another as instant claim 28 recites. However, Burleigh teaches at col. 5, lines 1-5 where hydrophilic material contains cells and the material does not allow the passage of liquids through open channels or pores, which provides functional equivalency to liquid impermeable barriers. See also col. 4, lines 55-60. It would have been obvious to one of ordinary skill in the art to further include liquid impermeable barriers as instant claim 28 to the laminate of Lickfield because Burleigh conventionally employs hydrophilic materials containing cells and liquid impermeable barriers to absorb water on one side of the material (col. 5, lines 1-10 of Burleigh).

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh and further in view of USPN 4,828,582 to Hermann and further in view of USPN 5,807,366 to Milani.

Lickfield is relied upon above. Lickfield does not teach an open cell foam is electrostatically charged. Milani teaches an absorbent article having a particle size gradient. The absorbent of Milani comprises nonwoven materials of various polymers and papers listed at col. 10, line 46-col. 11, line 40, col. 12, line 35-56, col. 13, lines 1-10. Milani employs exposing absorbent particles to electrostatic charging, including other portions of the absorbent article, such as loose fibers, fiber webs, foams, and films, which may also be electrostatically charged.

Further describing fibers or web may be charged such that the fibers or web repel the absorbent particles and improves liquid distribution. See col. 13, lines 25-45. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to further include electrostatically charging an absorbent layer of foam because Milani teaches doing so provides liquid barrier functionality and liquid distribution improvement, the same as Applicant requires.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh and further in view of USPN 5,730,922 to Babb et al. and further in view of USPN 5,807,366 to Milani.

Lickfield is relied upon above as applied to instant claim 23. Lickfield does not teach an absorbent mat is electrostatically charged. Milani teaches an absorbent article having a particle size gradient. The absorbent of Milani comprises nonwoven materials of various polymers and papers listed at col. 10, line 46-col. 11, line 40, col. 12, line 35-56, col. 13, lines 1-10. Milani employs exposing absorbent particles to electrostatic charging, including other portions of the absorbent article, such as loose fibers, fiber webs, foams, and films, which may also be electrostatically charged. Further describing fibers or web may be charged such that the fibers or web repel the absorbent particles and improves liquid distribution. See col. 13, lines 25-45. While Milani does not state fibrous mats may be electrostatically charged, it is obvious that charging a fibrous mat would be included by Milani because Milani teaches fibers in various forms may be electrostatically charged. The fibers that are contained in a fibrous mat would function in the same way Applicant intends because the same base materials e.g. fibers and same process e.g. electrostatically charging are employed by Milani. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to further include

electrostatically charging an absorbent mat because Milani teaches doing so provides liquid barrier functionality and liquid distribution improvement, the same as Applicant requires.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh and further in view of USPN 6,261,679 to Chen et al.

7. Lickfield is relied upon above. Lickfield does not disclose a plurality of hydrophobic barrier cells within an absorbent layer. Chen teaches a fibrous absorbent material. Chen discloses absorbent hydrophobic foam-fiber composites having a cell structure where other nonwoven layers can be attached at col. 14, lines 12-35 and Figures 1-3. Chen teaches the fibers are of cellulosic or papermaking fibers, or of polymers. See col. 11, lines 55-68. The advantages for making such a structure include suitable wet resiliency, effective absorption of fluids, maintaining integrity and shape, providing flexibility, conformability, and softness (see col. 14, lines 39-50). See also col. 15, lines 45-55 teaching motivation for providing open-cell foams in absorbent fibrous structures for creating void space. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to include a plurality of hydrophobic barrier cells within an absorbent layer because Chen provides the advantages of suitable wet resiliency, effective absorption of fluids, maintaining integrity and shape, providing flexibility, conformability, and softness (see col. 14, lines 39-50).

8. Lickfield does not teach hydrophobic barriers defining a plurality of cells for containing liquid within the boundaries of cells and preventing liquid from moving between the cells by barriers as instant claim 25 recites. However, Chen explains the absorbent foam layer includes closed cell foams (col. 28, lines 33-35), which by definition contains liquid within the boundaries

of cells as taught by Chen at col. 32, lines 19-21. Additionally regarding the prevention of liquid from moving between cells, Chen explains at col. 15, lines 23-45 absorbent structures can have gradients where open cells near a top surface allow the water to come through and closed cells neat a bottom surface prevent water passage where that surface is substantially liquid impervious. Further, Burleigh also teaches polymeric materials may be hydrophobic and hydrophilic, so long as prevention of the passage of water therethrough at col. 4, lines 55-61. None of the references explicitly describe the hydrophobic barriers having liquid being prevented from moving between cells, however one skilled in the art would naturally expect this function in view of the teachings of Chen and Burleigh. Therefore, such description by Chen and Burleigh provides functional equivalency to hydrophobic barriers as described in instant claim 25. It would have been obvious to one of ordinary skill in the art to further include cells containing liquid within the boundaries of cells including barriers as instant claim 25 to the laminate of Lickfield because Burleigh conventionally employs hydrophilic and hydrophobic materials containing cells for containing liquid forming barriers to absorb water on one side of the material (col. 4, lines 55-60 of Burleigh) and Chen further explains cells contain boundaries defined by the fiber status and prevent liquid such as water from passing through the material (col. 28, lines 33-35 and col. 15, lines 23-45).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 3,838,692 to Levesque.

Lickfield is relied upon above. Lickfield does not teach a hydrophobic layer with pores over an absorbent layer. Levesque teaches a hydrophobic sheet with hydrophilic passages. Levesque discovered a porous hydrophobic sheet that allows liquids to permeate through it to an

under absorbent layer in order to retain the liquid in the absorbent material (same reason as Applicant provides). The hydrophobic sheet is of hydrophobic fibers of pulp or polyolefin types. See col. 1, lines 5-20, lines 30-45, col. 2, lines 5-10, col. 3, lines 43-56, and col. 4, lines 5-15. The hydrophobic sheet may be a separate layer or a composite of multilayers forming an outer covering bonded to the absorbent or included in the absorbent material itself. See col. 4, lines 35-50 and Example 1. Hence, it would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to include a hydrophobic porous top sheet as instant claims 8 and 26 because Levesque teaches doing so in order to retain the liquid in the absorbent material as cited above.

9. Further regarding claim 26, that the pores are "allowing liquid to penetrate...", is not a positive recitation and does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

10. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh and further in view of USPN 6,261,679 to Chen et al.

11. Lickfield discloses a nonwoven laminate. The laminate is structured as follows: layer 12 is an electret material (permanently containing electrostatic charges) adjacent to layer 14. See col. 4, lines 35-60. While layer 14 is not described by Lickfield as an absorbent material, layer 14 is comprised of various natural or synthetic fibers having hydrophilic/hydrophobic properties. Such fibers include cotton, wool, rayon, or acrylic fibers (col. 4, lines 10-15). Such fibers as cotton inherently function to absorb liquid and layer 14 would be considered an absorbent layer because layer 14 is made entirely of such fibers. See also col. 3, lines 55-68. The Examiner

respectfully submits Applicant's absorbent material does not claim any absorbency percentage in use. The material of 12 is of a nonwoven fibrous web of polyolefin resins (col. 4, lines 35-45). Layer 14 may also comprise polyolefin resins. Layers 12 and 14 are bonded by various techniques at col. 4, lines 59-60. The limitation that the absorbent layer is "for protecting an exposed surface" is not a patentable limitation. Since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Since Lickfield employs the same materials as Applicant, it is inherent that the Lickfield article functions in the same manner as claimed by applicant. Lickfield discloses using the nonwoven laminate in filtration media which includes articles such as diapers, pads, surgical gowns, industrial garments and such at col. 1, lines 10-30. At col. 8, lines 38-50 and col. 9, lines 12-20, layer 14 may be combined with a nonwoven meltblown web on outer side 14.

While Lickfield employs hydrophilic fibers in the aforesaid layers, Lickfield does not expressly disclose a water-impermeable sheet. Burleigh teaches a waterproof, moisture-vapor permeable sheet material and method. Burleigh teaches sheet material 10 employs hydrophilic, water-impermeable material 13 (col. 3, lines 45-50). Burleigh explains the hydrophilic material must be capable of converting a liquid-impermeable solid water vapor transport material which sticks to the passage walls of the pores of the matrix. It would have been obvious to one of ordinary skill in the art to include a water-impermeable sheet in order to have a hydrophilic material that has the properties of liquid/vapor sticking to the walls of pores (col. 3, lines 45-50 of Burleigh).

Lickfield does not disclose an absorbent layer with a plurality of cells for containing liquid within boundaries of cells where liquid is prevented from moving between the cells (instant claim 1) or paper (instant claim 2) or define an open foam cell sheet (instant claim 3). Lickfield does not disclose a plurality hydrophobic barrier cells within an absorbent layer (instant claim 7). Chen teaches a fibrous absorbent material. Chen discloses absorbent hydrophobic foam-fiber composites having a cell structure where other nonwoven layers can be attached at col. 14, lines 12-35 and Figures 1-3, which produces the product as described in Applicant's instant claim 7. Chen teaches the fibers are of cellulosic or papermaking fibers, or of polymers (instant claim 2). See col. 11, lines 55-68. The advantages for making such a structure include suitable wet resiliency, effective absorption of fluids, maintaining integrity and shape, providing flexibility, conformability, and softness (see col. 14, lines 39-50). See also col. 15, lines 45-55 teaching motivation for providing open-cell foams in absorbent fibrous structures for creating void space. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to include paper or a plurality of hydrophobic barrier cells within an absorbent layer because Chen provides the advantages of suitable wet resiliency, effective absorption of fluids, maintaining integrity and shape, providing flexibility, conformability, and softness (see col. 14, lines 39-50). It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to include open cell foam because Chen teaches open-cell foams in absorbent fibrous structures for creating void space as cited above.

12. Lickfield does not teach hydrophobic barriers defining a plurality of cells for containing liquid within the boundaries of cells and preventing liquid from moving between the cells by barriers as instant claim 1 recites. However, Chen explains the absorbent foam layer includes

closed cell foams (col. 28, lines 33-35), which by definition contains liquid within the boundaries of cells as taught by Chen at col. 32, lines 19-21. Additionally regarding the prevention of liquid from moving between cells, Chen explains at col. 15, lines 23-45 absorbent structures can have gradients where open cells near a top surface allow the water to come through and closed cells neat a bottom surface prevent water passage where that surface is substantially liquid impervious. Further, Burleigh also teaches polymeric materials may be hydrophobic and hydrophilic, so long as prevention of the passage of water therethrough at col. 4, lines 55-61. None of the references explicitly describe the hydrophobic barriers having liquid being prevented from moving between cells, however one skilled in the art would naturally expect this function to behave in this manner in view of the teachings of Chen and Burleigh. Therefore, such description by Chen and Burleigh provides functional equivalency to hydrophobic barriers as described in instant claim 1. It would have been obvious to one of ordinary skill in the art to further include cells containing liquid within the boundaries of cells including barriers as instant claim 1 to the laminate of Lickfield because Burleigh conventionally employs hydrophilic and hydrophobic materials containing cells for containing liquid forming barriers to absorb water on one side of the material (col. 4, lines 55-60 of Burleigh) and Chen further explains cells contain boundaries defined by the fiber status and prevent liquid such as water from passing through the material (col. 28, lines 33-35 and col. 15, lines 23-45).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh, and further in view of USPN 6,261,679 to Chen et al., and further in view of USPN 5,807,366 to Milani.

Lickfield is relied upon above. Lickfield does not teach an open cell foam is electrostatically charged. Milani teaches an absorbent article having a particle size gradient. The absorbent of Milani comprises nonwoven materials of various polymers and papers listed at col. 10, line 46-col. 11, line 40, col. 12, line 35-56, col. 13, lines 1-10. Milani employs exposing absorbent particles to electrostatic charging, including other portions of the absorbent article, such as loose fibers, fiber webs, foams, and films, which may also be electrostatically charged. Further describing fibers or web may be charged such that the fibers or web repel the absorbent particles and improves liquid distribution. See col. 13, lines 25-45. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to further include electrostatically charging an absorbent layer of foam because Milani teaches doing so provides liquid barrier functionality and liquid distribution improvement, the same as Applicant requires.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh, and further in view of USPN 6,261,679 to Chen et al. and further in view USPN 5,730,922 to Babb et al.

Lickfield and Chen are relied upon above. Lickfield does not disclose absorbent layer 14 comprising a fibrous mat. Babb teaches a composite laminate sheet comprising a layer of polymeric material such as perfluorocyclobutane adhering to nonwoven or woven porous layers of paper, fibrous glass or non-woven fiber mats (as per instant claims 5-6), or polyester material (absorbent layer). See col. 2, lines 1-65, col. 13, line 45- col. 14, line 5, and col. 15, lines 25-60. Within col. 2, Babb discloses the various aforementioned layers may be of different fibrous structures e.g. fiber mats, porous nonwoven/wovens depending upon the desired application. At col. 1, lines 14-40 Babb points to the various forms of laminates. It would have been obvious to

one of ordinary skill in the art to modify the laminate of Lickfield to comprise materials such as fibrous mats because Babb teaches laminates may include such structures dependent upon the desired application, the same as Applicant requires.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh, and further in view of USPN 6,261,679 to Chen et al., and further in view of USPN 5,730,922 to Babb et al. and further in view of USPN 5,807,366 to Milani.

Lickfield and Chen are relied upon above. Lickfield does not teach an absorbent mat is electrostatically charged. Milani teaches an absorbent article having a particle size gradient. The absorbent of Milani comprises nonwoven materials of various polymers and papers listed at col. 10, line 46-col. 11, line 40, col. 12, line 35-56, col. 13, lines 1-10. Milani employs exposing absorbent particles to electrostatic charging, including other portions of the absorbent article, such as loose fibers, fiber webs, foams, and films, which may also be electrostatically charged. Further describing fibers or web may be charged such that the fibers or web repel the absorbent particles and improves liquid distribution. See col. 13, lines 25-45. While Milani does not state fibrous mats may be electrostatically charged, it is obvious that the mat would be charged because Milani teaches charging the fibers. The fibers that are contained in a fibrous mat would function in the same way Applicant intends because the same base materials (fibers) and same process (electrostatically charging) are employed by Milani. It would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to further include electrostatically charging an absorbent mat because Milani teaches doing so provides liquid barrier functionality and liquid distribution improvement, the same as Applicant requires.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,804,512 to Lickfield et al. in view of USPN 4,613,544 to Burleigh, and further in view of USPN 6,261,679 to Chen et al. and further in view of USPN 3,838,692 to Levesque.

Lickfield and Chen are relied upon above. Lickfield does not teach a hydrophobic layer with pores over an absorbent layer. Levesque teaches a hydrophobic sheet with hydrophilic passages. Levesque discovered a porous hydrophobic sheet that allows liquids to permeate through it to an under absorbent layer in order to retain the liquid in the absorbent material (same reason as Applicant provides). The hydrophobic sheet is of hydrophobic fibers of pulp or polyolefin types. See col. 1, lines 5-20, lines 30-45, col. 2, lines 5-10, col. 3, lines 43-56, and col. 4, lines 5-15. The hydrophobic sheet may be a separate layer or a composite of multilayers forming an outer covering bonded to the absorbent or included in the absorbent material itself. See col. 4, lines 35-50 and Example 1. Hence, it would have been obvious to one of ordinary skill in the art to modify the laminate of Lickfield to include a hydrophobic porous top sheet as instant claims 8 and 26 because Levesque teaches doing so in order to retain the liquid in the absorbent material as cited above.

13. Further regarding claim 8, that the pores are "allowing liquid to penetrate …", is not a positive recitation and does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

14. Claims 1-3, 5, 19-21, 23, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,730,922 to Babb et al. in view of USPN 4,828,582 to Hermann and further in view of USPN 4,613,544 to Burleigh.

Babb teaches a composite laminate sheet comprising a layer of polymeric material such

as perfluorocyclobutane adhering to nonwoven or woven porous layers of paper (as per instant claims 2 and 20), fibrous glass mats (as per instant claims 5-6 and 23-24), or polyester material (absorbent layer). The outer layer may provide adhesion characteristics via a surface treatment such as a corona discharging method (providing an electrostatically charged sheet by Applicant's same process). The limitation that the absorbent layer is "for containing liquid spilled on said absorbent layer" is not a patentable limitation. Since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). See col. 2, lines 1-65, col. 13, line 45-col. 14, line 5, and col. 15, lines 25-60.

Babb does not disclose an absorbent layer with a plurality of cells for containing liquid within boundaries of cells where liquid is prevented from moving between the cells or liquid impermeable barriers (instant claims 1 or 28) or define an open foam cell sheet (instant claim 2 or 21). Hermann discloses a foam substrate and micropackaged active ingredient particle composite dispensing materials. Hermann employs foam polymerization to form an open cell foam substrate at col. 6, lines 55-65 for providing extra strength to a material. See Figure 1 illustrating the plurality of open cells. Hermann's foam provides softness also at col. 7, line 13 which may contain polypropylene, polyethylene or other ingredients to provide protection against a number of environmental effects including sunlight or contamination. See further col. 7, lines 14-25. Further at col. 11, lines 45-55, the open cell foam is filled with liquid within fibrous or fabric material and bonded to the open foam substrate. Therefore, it would have been obvious to one of ordinary skill in the art to modify the article of Babb to include an open

cell foam since Hermann teaches doing so provides extra strength to a material, to contain liquid within the cells, or to provide protection against a number of environmental effects including sunlight or contamination as cited above.

Babb does not expressly disclose a water-impermeable sheet or the liquid in the cells forming barriers where prevention of liquid from moving from one cell to another occurs as required by instant claims 1, 19, and 28. However, Burleigh teaches at col. 5, lines 1-5 where hydrophilic material contains cells and the material does not allow the passage of liquids through open channels or pores, which provides functional equivalency to liquid impermeable barriers. See also col. 4, lines 55-60 of Burleigh describing hydrophobic or hydrophilic materials are employed to prevent the passage of water (functional equivalency of liquid impermeable barriers). None of the references explicitly describe the liquid being prevented from moving between cells or from one cell to another, however one skilled in the art would naturally expect this function to behave in this manner absent any evidence to the contrary. It would have been obvious to one of ordinary skill in the art to further include liquid impermeable barriers as instant claims 1, 19, and 28 to the laminate of Babb because Burleigh conventionally employs hydrophilic materials containing cells and liquid impermeable barriers to absorb water on one side of the material (col. 4, lines 55-60 and col. 5, lines 1-10 of Burleigh).

15. Claims 4, 6, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,730,922 to Babb et al. in view of USPN 4,828,582 to Hermann and further in view of USPN 4,613,544 to Burleigh and further in view of USPN 5,807,366 to Milani.

Babb is relied upon above. Babb does not teach the absorbent mat or foam is electrostatically charged. Milani teaches an absorbent article having a particle size gradient. The absorbent of Milani comprises nonwoven materials of various polymers and papers listed at col. 10, line 46-col. 11, line 40, col. 12, line 35-56, col. 13, lines 1-10. Milani employs exposing absorbent particles to electrostatic charging, including other portions of the absorbent article, such as loose fibers, fiber webs (inclusive of mat), foams, and films, which may also be electrostatically charged. Further describing fibers or web may be charged such that the fibers or web repel the absorbent particles and improves liquid distribution. See col. 13, lines 25-45. It would have been obvious to one of ordinary skill in the art to modify the composite of Babb to further include electrostatically charging an absorbent layer because Milani teaches doing so provides liquid barrier functionality and liquid distribution improvement as cited above.

Claims 7 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,730,922 to Babb et al. in view of USPN 4,828,582 to Hermann and further in view of USPN 4,613,544 to Burleigh and further in view of USPN 6,261,679 to Chen et al.

16. Babb is relied upon above. Babb does not disclose a plurality hydrophobic barrier cells within an absorbent layer. Chen teaches a fibrous absorbent material. Chen discloses absorbent hydrophobic foam-fiber composites having a cell structure where other nonwoven layers can be attached at col. 14, lines 12-35 and Figures 1-3. Chen teaches the fibers are of cellulosic or papermaking fibers, or of polymers. See col. 11, lines 55-68. The advantages for making such a structure include suitable wet resiliency, effective absorption of fluids, maintaining integrity and shape, providing flexibility, conformability, and softness (see col. 14, lines 39-50). See also col. 15, lines 45-55 teaching motivation for providing open-cell foams in absorbent fibrous structures

for creating void space. It would have been obvious to one of ordinary skill in the art to modify the composite of Babb to include a plurality of hydrophobic barrier cells within an absorbent layer because Chen provides the advantages of suitable wet resiliency, effective absorption of fluids, maintaining integrity and shape, providing flexibility, conformability, and softness (see col. 14, lines 39-50). Further to instant claim 25, Babb does not teach hydrophobic barriers defining a plurality of cells for containing liquid within the boundaries of cells and preventing liquid from moving between the cells by barriers. However, Chen explains the absorbent foam layer includes closed cell foams (col. 28, lines 33-35), which by definition contains liquid within the boundaries of cells as taught by Chen at col. 32, lines 19-21. Additionally regarding the prevention of liquid from moving between cells, Chen explains at col. 15, lines 23-45 absorbent structures can have gradients where open cells near a top surface allow the water to come through and closed cells neat a bottom surface prevent water passage where that surface is substantially liquid impervious. Further, Burleigh also teaches polymeric materials may be hydrophobic and hydrophilic, so long as prevention of the passage of water therethrough at col. 4, lines 55-61. None of the references explicitly describe the hydrophobic barriers having liquid being prevented from moving between cells, however one skilled in the art would naturally expect this function to behave in this manner in view of the teachings of Chen and Burleigh. Therefore, such description by Chen and Burleigh provides functional equivalency to hydrophobic barriers as described in instant claim 25. It would have been obvious to one of ordinary skill in the art to further include cells containing liquid within the boundaries of cells including barriers as instant claim 25 to the laminate of Babb because Burleigh conventionally employs hydrophilic and hydrophobic materials containing cells for containing liquid forming

barriers to absorb water on one side of the material (col. 4, lines 55-60 of Burleigh) and Chen further explains cells contain boundaries defined by the fiber status and prevent liquid such as water from passing through the material (col. 28, lines 33-35 and col. 15, lines 23-45).

Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,730,922 to Babb et al. in view of USPN 4,828,582 to Hermann and further in view of USPN 4,613,544 to Burleigh and further in view of USPN 3,838,692 to Levesque.

Babb is relied upon above. Babb does not teach a hydrophobic layer with pores over an absorbent layer. Levesque teaches a hydrophobic sheet with hydrophilic passages. Levesque discovered a porous hydrophobic sheet that allows liquids to permeate through it to an under absorbent layer in order to retain the liquid in the absorbent material (same reason as Applicant provides). The hydrophobic sheet is of hydrophobic fibers of pulp or polyolefin types. See col. 1, lines 5-20, lines 30-45, col. 2, lines 5-10, col. 3, lines 43-56, and col. 4, lines 5-15. The hydrophobic sheet may be a separate layer or a composite of multilayers forming an outer covering bonded to the absorbent or included in the absorbent material itself. See col. 4, lines 35-50 and Example 1. Hence, it would have been obvious to one of ordinary skill in the art to modify the laminate of Babb to include a hydrophobic porous top sheet as instant claims 8 and 26 because Levesque teaches doing so in order to retain the liquid in the absorbent material as cited above.

Further regarding claims 8 and 26, that the pores are "allowing liquid to penetrate …", is not a positive recitation and does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. References still used in the rejection are outlined for reasons here below:

- Lickfield discloses a nonwoven laminate. The laminate is structured as follows: layer 12 is an electret material (permanently containing electrostatic charges) adjacent to layer 14.
- Babb teaches a composite laminate sheet comprising a layer of polymeric material such as perfluorocyclobutane adhering to nonwoven or woven porous layers of paper, fibrous glass or non-woven fiber mats, or polyester material (absorbent layer).
- Hermann discloses a foam substrate and micropackaged active ingredient particle composite dispensing materials. Hermann employs foam polymerization to form an open cell foam substrate at col. 6, lines 55-65 for providing extra strength to a material.
- Milani employs exposing absorbent particles to electrostatic charging, including other portions of the absorbent article, such as loose fibers, fiber webs, foams, and films, which may also be electrostatically charged.
- Chen teaches a fibrous absorbent material. Chen discloses absorbent hydrophobic foam-fiber composites having a cell structure where other nonwoven layers can be attached at col. 14, lines 12-35 and Figures 1-3.

- Levesque discovered a porous hydrophobic sheet that allows liquids to permeate through it to an under absorbent layer in order to retain the liquid in the absorbent material

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 5,102,711 to Keller et al. teaches a breathable layered material employing hydrophilic and water-impermeable sheet having hydrophilic material forming barriers to liquids containing absorbent material.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The

examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamra L. Dicus
Examiner
Art Unit 1774

June 1, 2004

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